Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 ( Canceled)

Claim 2 (Currently Amended): A semiconductor device comprising:

a plurality of photodiodes being formed in a matrix on an insulating surface;

a plurality of vertical charge coupled devices on the insulating surface, said vertical charge coupled devices being connected with the plurality of photodiodes;

at least a horizontal charge coupled device on the insulating surface, said horizontal charge coupled device being connected with the vertical charge coupled **[[device]]** devices,

wherein at least one of the vertical and horizontal charge coupled devices comprises a crystalline semiconductor film having a plurality of crystals extending in a crystal growth direction,

wherein a crystal structure of the crystalline semiconductor film in the crystal growth direction is continuous so that a charge moving is not restricted by a grain boundary,

wherein at least one of the vertical and horizontal charge coupled devices that has the crystalline semiconductor film is arranged such that a charge transfer direction of the at least one of the vertical and horizontal charge coupled devices is coincident with the crystal growth direction.

Claims 3-5 (Canceled)

Claim 6 (Previously Amended): A device according to claim 2 further comprising an active matrix display device being integrated with said vertical and horizontal charge coupled devices over a same substrate.

Claim 7 (Withdrawn): A method of manufacturing a charge transfer semiconductor device, said method comprising the steps of:

forming an amorphous semiconductor film on an insulating surface;

selectively introducing a metal element for promoting crystallization of said semiconductor in contact with a portion of said amorphous semiconductor film;

heating the amorphous semiconductor film so that a plurality of crystals grow in a crystal growth direction parallel with said insulating surface from the portion to form a crystalline semiconductor film;

heating said crystalline semiconductor film in an oxidizing atmosphere including a halogen element to form a thermal oxidation film on a surface of the semiconductor film;

removing said thermal oxidation film; and

forming at least a charge coupled device for transferring a charge in a charge transfer direction that coincides with the crystal growth direction.

Claim 8 (Withdrawn): A method according to claim 7 wherein said insulating surface is a quartz substrate.

Claim 9 (Withdrawn): A method according to claim 7 wherein said metal element is at least one element selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

Claim 10 (Withdrawn): A method according to claim 7 wherein said crystalline semiconductor film is heated in the oxidizing atmosphere at 800-1100°C.

Claim 11 (Previously Amended): A device according to claim 2,

wherein the crystalline semiconductor film is formed over a quartz substrate, and

wherein an incident light is made from a side of the quartz substrate.

Claim 12 (Original): A device according to claim 2 wherein said charge transfer direction includes a plurality of directions.

Claim 13 (Canceled)

Claim 14 (Original): A device according to claim 2 wherein said semiconductor film is a silicon film.

Claim 15 (Withdrawn): A method according to claim 7 wherein said semiconductor film is a silicon film.

Claim 16 (Previously Presented): A semiconductor device including a CCD, said CCD comprising:

a crystalline semiconductor film formed on an insulating surface, said crystalline semiconductor film having a plurality of crystals extending in a crystal growth direction which is parallel to the insulating surface;

an insulating film on the crystalline semiconductor film;

a plurality of electrodes formed on the insulating film, each of said plurality of electrodes located within a predetermined distance so that a plurality of MOS capacitors are formed between the plurality of electrodes and the crystalline semiconductor film with the insulating film therebetween,

wherein a charge is transferred from one of the MOS capacitors to another of the MOS capacitors in a charge transfer direction,

wherein a crystal structure of the crystalline semiconductor film is continuous so that the crystal structure is regarded as single crystal for the charge,

wherein the charge transfer direction is coincident with said crystal growth direction.

Claim 17 (Previously Presented): A device according to claim 16, wherein said insulating surface is a quartz substrate.

Claim 18 (Previously Presented): A device according to claim 16, wherein said semiconductor device is at least one selected from the group consisting of an image sensor, a delay line, a filter, a memory and an operation unit.

Claim 19 (Previously Presented): A semiconductor device comprising:

a photoelectric conversion being formed over an insulating surface;

a charge coupled device being electrically connected to the photoelectric conversion device and formed over the insulating surface;

said charge coupled device including:

a crystalline semiconductor film being formed on the insulating surface, said crystalline semiconductor film having a plurality of crystals extending in a crystal growth direction which is parallel to the insulating surface;

an insulating film on the crystalline semiconductor film;

a plurality of electrodes being formed on the insulating film, each of said plurality of electrodes being located within a predetermined distance so that a plurality of MOS capacitors are formed between the plurality of electrodes and the crystalline semiconductor film with the insulating film therebetween,

wherein a charge is transferred from one of the MOS capacitors to another of the MOS capacitors in a charge transfer direction,

wherein a crystal structure of the crystalline semiconductor film in the crystal growth direction is continuous so that a charge moving is not restricted by a grain boundary,

wherein the charge transfer direction is coincident with the crystal growth direction.

Claim 20 (Previously Presented): A device according to claim 19, wherein said insulating surface is a quartz substrate.

Claim 21 (Previously Presented): A device according to claim 19, wherein said semiconductor device is an image sensor.

Claim 22 (Previously Presented): A device according to claim 19, wherein said photoelectric conversion device is a photodiode.

Claim 23 (Previously Presented): A device according to claim 19 further comprising an active matrix type liquid crystal display device being integrated over the insulating surface.

Claim 24 (Previously Presented): A semiconductor device comprising:

a plurality of photodiodes formed in a matrix on an insulating surface;

a plurality of vertical charge coupled devices on the insulating surface, said vertical charge coupled devices connected with the plurality of photodiodes;

at least a horizontal charge coupled device on the insulating surface, said horizontal charge coupled device connected with the vertical charge coupled device,

wherein at least one of the vertical and horizontal charge coupled devices comprises a crystalline semiconductor film having a plurality of crystals extending in a crystal growth direction,

wherein a charge transfer direction of at least one of the vertical and horizontal charge coupled devices is coincident with the crystal growth direction.

Claim 25 (Previously Presented): A semiconductor device comprising:

a photoelectric conversion formed over an insulating surface;

a charge coupled device electrically connected to the photoelectric conversion device and formed over the insulating surface;

said charge coupled device including:

a crystalline semiconductor film formed on the insulating surface, said crystalline semiconductor film having a plurality of crystals extending in a crystal growth direction which is parallel to the insulating surface;

an insulating film on the crystalline semiconductor film;

a plurality of electrodes formed on the insulating film, each of said plurality of electrodes located within a predetermined distance so that a plurality of MOS capacitors are formed between the plurality of electrodes and the crystalline semiconductor film with the insulating film therebetween,

wherein a charge is transferred from one of the MOS capacitors to another of the MOS capacitors in a charge transfer direction,

wherein the charge transfer direction is coincident with the crystal growth direction.

Claim 26 (Previously Presented): A semiconductor device comprising:

a photoelectric conversion formed over a transparent substrate;

a charge coupled device electrically connected to the photoelectric conversion device and formed over the insulating surface;

said charge coupled device including:

a crystalline semiconductor film formed on the insulating surface, said crystalline semiconductor film having a plurality of crystals extending in a crystal growth direction which is parallel to the insulating surface;

an insulating film on the crystalline semiconductor film;

a plurality of electrodes formed on the insulating film, each of said plurality of electrodes located within a predetermined distance so that a plurality of MOS capacitors are formed between the plurality of electrodes and the crystalline semiconductor film with the insulating film therebetween, and

an active matrix display device comprising a plurality of thin film transistors formed over the transparent substrate;

wherein a charge is transferred from one of the MOS capacitors to another of the MOS capacitors in a charge transfer direction,

wherein the charge transfer direction is coincident with the crystal growth direction.